

## n x 10 Gbps Offload NIC for NASA, NLR, Grid Computing, Phase I

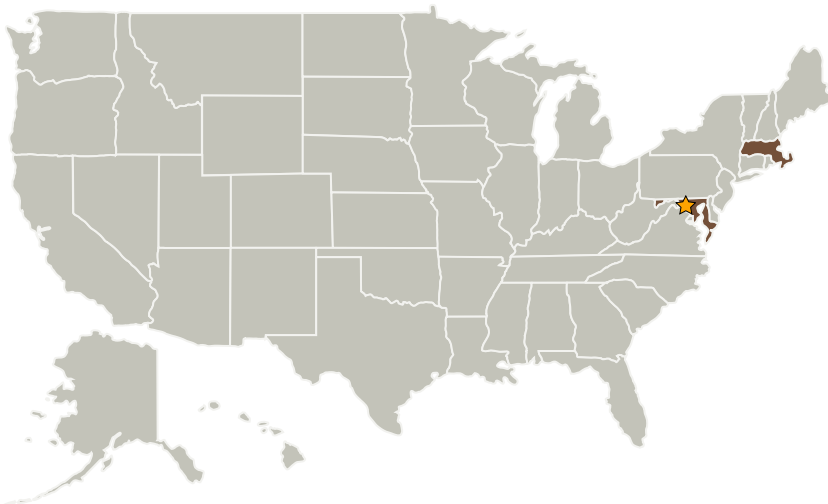


Completed Technology Project (2009 - 2009)

## Project Introduction

This Phase 1 proposal addresses the 2008 NASA SBIR Research Topic S6.04 Data Management - Storage, Mining and Visualization (GSFC). The subtopic we address is Distributed Data Management and Access: Dynamically configurable high speed access to data distributed and shared over wide area high speed network environments. We propose a novel offload engine NIC that scales at n x 10Gbps increments through 100Gbps full-duplex. Globus GridFTP is the de facto standard in projects requiring secure, robust, high-speed bulk data transport. Splintered TCP and UDP is recognized by NASA to be a new offload technology developed by our group in previous research. We derive novel extension mechanisms which will combine these technologies for use by GridFTP, bandwidth management resources, and host cpu acceleration. The result will be wire-rate encrypted GridFTP data transfer through offload for splintering, encryption, and compression. Successful completion of this Phase 1 project will prove feasibility of our innovation through hardware architectural models, system on chip core IP, ultra high-speed logic simulations, and GridFTP module specifications.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Center / Facility:

Goddard Space Flight Center  
(GSFC)

### Responsible Program:

Small Business Innovation  
Research/Small Business Tech  
Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
SeaFire Micros, Inc.	Supporting Organization	Industry	Beverly, Massachusetts

## Primary U.S. Work Locations

Maryland	Massachusetts
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX11 Software, Modeling, Simulation, and Information Processing
  - └ TX11.4 Information Processing
    - └ TX11.4.2 Intelligent Data Understanding